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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,068	09/09/2003	Toshiaki Iwamatsu	241807US-2DIV	9191

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EXAMINER

HUYNH, ANDY

ART UNIT PAPER NUMBER

2818

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/657,068

Applicant(s)

IWAMATSU ET AL.

Examiner

Andy Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-27 is/are pending in the application.
- 4a) Of the above claim(s) 13-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/985,020.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9903,123003,22404</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Election/Restrictions***

In the Response to the Election of Species Requirement dated 09/30/2004, Applicants have elected with traverse Species A (claims **11-12 and 22-25**) is acknowledged. However, Applicants believe that claims **22-25** are not readable on Species A. Examiner respectfully agrees with Applicants that the semiconductor of claims **11-12** is shown in Figure 32, and the semiconductor of claims **22-25** is shown in Figure 52. Figures 32 and 52 are two different embodiments. Thus, an election of claims **11-12 and 22-25** is further required. Applicants further elect claims **11-12** for examination on the merits is acknowledged. Accordingly, claims **13-27** are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 35 § 1.142(b) and MPEP § 821.03. Applicants have the right to file a divisional application covering the subject matter of the non-elected claims **13-27**.

Priority

Acknowledgment is made of applicants' claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in Parent Application No. 09/985,020, filed November 01, 2001.

Information Disclosure Statement

This office acknowledges receipt of the following items from the applicant:

Information Disclosure Statement (IDS) filed on 09/09/2003, 12/30/2003 and 02/24/2004. The references cited on the PTOL 1449 form have been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrett (USP: 5,612,243) in view of Korean Patent Application Laid-Open No. 1996-0002744 (English Extract), Applicant's submitted prior art (ASPA).

Verrett discloses in Fig. 1 and the corresponding texts as set forth in column 3, lines 14-30, a semiconductor device comprises:

a semiconductor layer containing a P-well (14) and a N-well (12);

a plurality of semiconductor elements (8, 9, 24 and 25) formed on said semiconductor layer;

an isolation film (16a, 16b and 16c) provided in a surface of said semiconductor layer, said semiconductor elements being electrically isolated from each other by said isolation film; and

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a PN junction portion formed by two semiconductor regions of different conductivity types (P-Si and N-Si) in said semiconductor layer provided under said isolation film.

Verrett fails to teach the isolation film including a nitride film provided in a position corresponding to a top of said PN junction portion and having a substantially uniform thickness across said two semiconductor regions; and an upper oxide film and a lower oxide film which are provided in upper and lower portions of said nitride film.

Korean Patent Application No. 1996-0002744 teaches that an element isolation film of a semiconductor element in which a trench is formed on a silicon substrate in order to increase the size of a cell region by minimizing an element isolation region and the reliability of an element can be improved by forming within the trench an element isolation film of laminated structure with good isolation property of oxide film-nitride film-oxide film.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form an element isolation film of laminated structure with good isolation property of oxide film-nitride film-oxide film, as taught by Korean Patent Application No. 1996-0002744 to incorporate into Verrett's structure to modify and to form the isolation film of Verrett's structure with an element isolation film of laminated structure with good isolation property of oxide film-nitride film-oxide film in order to improve the reliability of an device.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verrett (USP: 5,612,243) in view of Korean Patent Application Laid-Open No. 1996-0002744

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(English Extract), Applicant's submitted prior art (ASPA), further in view of Fig. 65 of Applicants' admitted prior art (AAPA).

Verrett and Korean Patent Application No. 1996-0002744 disclose the claimed limitations except for the semiconductor device wherein said semiconductor device is an SOI semiconductor device formed on an SOI substrate including a silicon substrate, a buried oxide film provided on said silicon substrate and an SOI layer provided on said buried oxide film, said semiconductor layer being said SOI layer. However, Fig. 65 of AAPA teaches that the semiconductor device is an SOI semiconductor device formed on an SOI substrate (10) including a silicon substrate (1), a buried oxide film (2) provided on said silicon substrate and an SOI layer (3) provided on said buried oxide film, said semiconductor layer being said SOI layer. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate an SOI substrate into Verrett's structure to form the claimed invention in order to reduce parasitic capacitance and power consumption, and an operation can be performed at a high speed (see Description of the Background Art).

Conclusion

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ah

10/16/04



Andy Huynh

Patent Examiner